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Diffraction of electromagnetic waves by gratings with piecewise smooth boundaries

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Abstract

We consider a boundary value problem for the Helmholtz equation that arises in the mathematical modeling of the scattering of a plane electromagnetic wave by infinite perfectly conducting gratings with an arbitrary piecewise-smooth profile of finite size. In the Hilbert space of the square-integrable functions we find the solution of this problem as a potential whose density represents a solution of a weakly singular integral equation.